

A field test of the principle-based approach to life insurance reserves and capital

Summary of the Milliman/SOA project



Ken Joyce, FSA, MAAA
Craig Roberts, FSA, MAAA
Karen Rudolph, FSA, MAAA
William Sayre, FSA, MAAA
Uri Sobel, FSA, MAAA

On September 23, the National Association of Insurance Commissioners (NAIC) adopted important revisions to the Standard Valuation Law (SVL), thereby endorsing a move towards principle-based accounting. The new SVL makes major changes to a reserving framework that has endured for more than a century. The revisions reflect a consensus developed among regulators and industry participants during a five-year period of dialogue. Under the NAIC's principle-based approach, companies will hold reserves deemed consistent with the risks inherent in the underlying liabilities and supporting assets. These risks may be determined using results of actuarial simulations. In developing the new SVL, the NAIC's aim was to take account of modern products, pricing, and risk management, while balancing dual needs of flexibility and rigor, and meeting the fundamental objectives of statutory reporting.

Though details will be finalized over the next several months, and approval is still required at the individual state level, the revised SVL is indicative of the final framework of the law.

Envisioning the NAIC's action, the Society of Actuaries (SOA) chose Milliman to lead a collaborative field test aimed at evaluating implications of the principle-based approach. The objectives of this field test were three-fold:

- Explore the impact of the proposed methodology through preliminary modeling results
- Understand the challenges of implementing the methodology
- Uncover elements of the methodology that may benefit from refinement before final sign-off by regulators

The complete report is available on the SOA website at <http://www.soa.org/files/pdf/research-2009-pba-report.pdf>.

SUMMARY OF KEY FINDINGS

Thoughts on the Proposal Framework

Based on the results of this analysis, Milliman believes that the proposed framework, when carefully implemented, should achieve the objectives of a modernized SVL, while satisfying the traditional requirements of statutory reporting.

Depending on individual company circumstances, implementation may require updates to existing systems, revisions to financial reporting templates and protocols, and an evolution of corporate management mindset.

Several of the key technical findings of the analysis are summarized in the paragraphs below. We conclude this brief summary with a few observations on implementation of the principle-based approach.

Cash Value Floor

The field test results indicate that the cash value floor requirement of VM-20 has a material impact on the Per Policy Reserves and thus the Deterministic Reserves for term insurance, universal life, and whole life policies. Its significance depends in large part upon the competitiveness of the product, especially for term insurance products.

When compared to current statutory minimum reserve requirements, this research test bed suggests a wide range of possible outcomes. The range is influenced by:

- Sufficiency of the premium to support benefits, expenses, and profit
- Maturity of the block
- Level of margins used in the valuation
- Characteristics of the asset portfolio supporting the policies

The value of margins, as measured by the difference in Seriatim Reserves, can be significantly muted by the application of the cash value floor. Determining the direction and ultimate impact to the entire modeled block of margins that are established on each individual risk factor will be difficult. Details provided as part of this research on the universal life policies show that although a margin increases the Seriatim Reserve, the Per Policy Reserve may not follow suit, which is due largely to the influence of the cash value floor. The direction of the margin (e.g., to increase or decrease the rate of lapse) could vary on a contract level and may even vary on a policy year level.

Stochastic Modeling Exclusion Test

The Stochastic Modeling Exclusion Test is similar in design for both principle-based reserves and C3 RBC. Passing this test exempts the subject block from performing the stochastic analysis and will be a critical path item, particularly for small-to-medium size insurers. A summary of the findings for the tested blocks is shown below in Table 1.

The result of the Stochastic Modeling Exclusion Test is not always an indicator of whether a stochastic excess exists for a block.

Comparison of VM-20 Minimum Reserves to Statutory Reserves

Table 2 summarizes comparisons between the principle-based requirements and current statutory and RBC requirements.

Risk-based Capital Elements

With respect to risk-based capital elements, this research indicates that current statutory reserve levels are high enough that proposed C3 Phase III requirements result in no additional C3 requirement above the statutory reserve amounts for the majority of the blocks tested.

IMPLEMENTATION CHALLENGES

Milliman has worked closely with regulators, companies, and professional groups during the course of the development of principle-based accounting (PBA). As a result of these collaborative efforts, Milliman has developed insight into the many issues that arise in the course of PBA implementation, including:

- Development of methods and processes
- Runtime
- Auditability
- Determination of assumptions
- Establishment of margins
- Analysis and integration of results into the management process

For more information, contact one of the authors or your Milliman consultant.
 Ken Joyce at ken.joyce@milliman.com or +1 781 213 6224
 Craig Roberts at craig.roberts@milliman.com or +1 206 504 5544
 Karen Rudolph at karen.rudolph@milliman.com or +1 402 361 1515
 William Sayre at bill.sayre@milliman.com or +1 973 569 5838
 Uri Sobel at uri.sobel@milliman.com or +1 973 569 5839

TABLE 1

PRODUCT	NUMBER OF SUBJECT BLOCKS	PASSING (I.E., RATIO LESS THAN 4%)	FAILING (I.E., RATIO 4% OR GREATER)
LEVEL PREMIUM TERM (10-, 20-, AND 30-YEAR)	7	6	1
UNIVERSAL LIFE	6	2	4
WHOLE LIFE	4	4	0

TABLE 2

PRODUCT	NUMBER OF SUBJECT BLOCKS	RANGE OF VM-20 MINIMUM RESERVE TO NET STATUTORY RESERVE LESS DEFERRED PREMIUM
LEVEL PREMIUM TERM (20-YEAR ONLY)	4	26% TO 83%
UNIVERSAL LIFE	6	67% TO 116%
WHOLE LIFE	4	78% TO 100%